PROBLEMS.

325. *By Prof. F. P. Matz, King's Mountain, N. C.*—Given the altitude and radius of the circumscribed and inscrib'd circles of a plane scalene triangle; to find the three sides.

326. *By Prof. J. H. Kershner.*—Draw a line bisecting a given triangle so that the part lying within shall be, 1st, a minimum, 2nd, a maximum.

327. *By Request.*—The poles of the radical axis of two circles taken with respect to each circle, and the two centers of similitude of the circles, are four harmonic points. (Ex. 8, p. 367, Chauvanet's Modern Geom.)

328. *By Prof. D. J. Mc Adam.*—A body is projected from the top of a tower 100 ft high at an angle of elevation of 45°, with a velocity of 60 ft per second. Find the distance from the point at which it first strikes the horizontal plane to the second point at which it strikes the plane. The modulus of elasticity being $\frac{1}{3}$, and the resistance of the atmosphere neglected.

329. *By E. J. Edmunds, Professeur de Francais d'Anglais et de Mathématiques, 11, rue Toullier, Paris.*—Three points, A, B, C, being given, to find a point M, whose distance from A, B and C, shall be a minimum.

330. *By Prof. E. B. Seitz, Kirksville, Mo.*—Two points are taken at random within a circle on opposite sides of a given diameter, and a third point is taken at random in the circumference; find the average area of the triangle formed by joining the points.

331. *By W. E. Heal, Marion, Ind.*—Show that the reciprocal of the Hessian of the reciprocal of a given curve passes through the points of contact of multiple tangents, and points of inflexion of the given curve.

ANNOUNCEMET OF VOL. VIII.—As the number of persons, in this country, who are able and willing to devote time and money to the cultivation of Mathematics as a Science, is comparatively small, and as the ANALYST depends entirely upon its subscribers for the pecuniary aid necessary for its production, and for voluntary contributions to fill its pages, it was scarcely to be expected that it would survive to the age it has already attained.

It has been our intention from its birth, as we have heretofore stated to our subscribers, to continue the ANALYST as long as our health will permit and the interest in it, manifested by its readers, continues unabated. We are, therefore pleased to be able to say that, so far as we can judge at present, the ANALYST will survive yet several years; and as we trust it has been of some service in promoting the cultivation of the Science of mathemat-

ics, which is the key to all other sciences, we hope the interest and support of our subscribers will continue unabated.

The Nos. of Vol. VIII shall appear promptly as they are due, No. 1, about the 1st of Jan., 1881.

J. E. HENDRICKS.

PUBLICATIONS RECEIVED.

Address before the American Association for the Advancement of Science, Section A. By PROF. ASAPH HALL. Boston meeting, Aug. 25, 1880.

Geology of Wisconsin. Vols. II and III. 8vo. 1877 and 1879.

Each Vol. contains nearly 800 pages, is finely illustrated with many engravings, and is accompanied by an Atlas of 14 Maps, 24 by 30 inches, each. This is a magnificent work and is creditable to the State, as well as to the parties who made the surveys.

Ray's New Higher Arithmetic. 408 pp. 12mo. Van Antwerp, Bragg and Co. Cincinnati. 1880.

This is a very neat Revision of a very popular book. And the fact that the Revision has been in charge of Prof. J. M. Greenwood, is a guaranty that the work is brought up to the present demands of the science.

The American Journal of Mathematics, Vol. III, No. 1.

This Number contains two papers of special interest: 1. *Regular Figures in* n-*dimentional Space*, by W. J. Stringham, and, 2. *On the Algebra of Logic*, by C. S. Peirce.

The Mathematical Visitor, No. 4. Erie, Pa. Artemas Martin, A. M., Editor and Publisher. Semi-annual. $1.00 per annum.

Versuch einer mathematischen Theorie zur Erklarung des Lichtwechsels der veranderlichen Sterne. Von Hugo Gylden. Helsingfors. 1880. 63 pp. 4to.

The author attempts to find a mathematical expression for the brightness of a variable star. His theory is founded on certain notions of Zollner modified or generalized. He considers a variable star as a glowing body of globular form having a motion of rotation; but the points of whose surface emit light of very different degrees of intensity, on account of the presence of scoria or similar matter. These scoria-areas, although probably slowly variable in size and position on the surface, may, he thinks, for the comparatively short time which observation at present covers, be considered as fixed. The moments of inertia are regarded as having any values whatever, and the instantaneous axis of rotation may have any direction with respect to the principal axes. The brightness comes out as a periodic function dependent on two arguments increasing proportionally to the time, the ratio of whose periods is a function of the differences of the moments of inertia. The author has not compared his theory with the data of observation, for the reason that sufficiently extended series of observations of the intensity of the light of the variable stars have not been published in the astronomical journals. The mere times of maxima and minima will not, he says, afford a crucial test of his theory.

G. W. H.

ERRATA.

On page 150, at the beginning of the first of the two general formulæ, for "$\frac{1}{2}$" read $\frac{1}{2n}$.

" " 184, *dele* "r" in the Figure.